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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,964	02/21/2002	Yukimasa Saito	67121943-1007 DIV	2482

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EXAMINER
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LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

**Office Action Summary**

Application No.

10/080,964

Applicant(s)

SAITO ET AL.

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 17-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/448,879.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

**DETAILED ACTION*****Specification***

1. The disclosure is objected to because of the following informalities: on page 3 lines 22, and 23, on page 7 line 26, on page 8 line 9, on page 9 line 16, on page 10 lines 3, 12, and 18 "fluoride hydrogen" should read --hydrogen fluoride--; on page 13 line 14 "VG4" should read --VB4--; on page 13 line 27 "64" should read --64a--; on page 13 line 27 "fluoride hydrogen" should read --hydrogen fluoride--; on page 14 line 2 "64" should read --64a--; on page 14 line 3 "fluoride hydrogen" should read --hydrogen fluoride--; on page 14 line 4 "35" should read --35d--; on page 14 line 5 "64" should read --64c--; on page 14 line 15 "63" should read --63c--; on page 18 line 18 "34c." should read --34c,--; on page 24 line 12 "fluoride hydrogen" has been changed to --hydrogen fluoride-; on page 24 line 20 "fluoride hydrogen" has been changed to --hydrogen fluoride-; on page 24 lines 21 and 24, on page 25 lines 3 and 20, on page 26 lines 3, 7, 12, and 26, on page 27 lines 21, 23, and 27, on page 28 line 15, on page 29 lines 3, 19, 21, and 23, and on page 30 lines 5, 12, 17, and 18 "fluoride hydrogen" should read --hydrogen fluoride--; on page 30 line 20 "VG4" should read --VB4--; on page 31 line 24, on page 32 lines 4, 6, 9, 22, and 27, "fluoride hydrogen" should read --hydrogen fluoride--; on page 33 line 7 "64" should read --64d--; and on page 35 lines 5, 7, 9, and 26 "fluoride hydrogen" should read --hydrogen fluoride--. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 17-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claims 17, 19, 21, 22 and 24 the chemical "fluoride hydrogen" does not exist. The term "fluoride hydrogen" should read --hydrogen fluoride--.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 17, 21, and 24 rejected under 35 U.S.C. 102(e) as being anticipated by Saito, US Patent 6,159,298.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Saito teaches a method of cleaning a reaction tube that includes: a loading step (column 7 line 3); a first film-forming step (column 7 line 20); a second film forming process (column 7 line 55); and a cleaning step of cleaning the reactor, exhaust pipe, and disk trap with heated HF gas. A pressure control device 42 controls the pressure between the traps during cleaning. Saito also teaches a first-forming step deposits silicon oxide by resolving alkoxysilane, and a second film-forming step deposits silicon nitride by a reaction of ammonia and a silicon compound (column 1 line 30-47).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being obvious over Saito, US Patent 6,159,298, in view of Mori et al, JP Patent 05-214339 A.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37

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CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Saito was discussed above.

Saito differs from the present invention in that Saito does not teach a specific operating temperatures (100-200°C) and pressures (10-30 kPa).

Mori et al teaches an HF cleaning method that operates at a temperature of 100°C or less and a pressure of 100-760 Torr (13-101 kPa).

The motivation for operating the method of Saito using the parameters of Mori et al is to provide the required operating parameters that are required but not provided by Saito. Furthermore, it is obvious to optimize the operating pressures and temperatures.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the method of Saito using the temperature and pressure limitations taught by Mori et al.

8. Claims 22 and 23 are rejected under 35 U.S.C. 103(a) as being obvious over Saito, US Patent 6,159,298, in view of Ishiko, JP Patent 63-006922 A.

The applied reference has a common inventor and assignee with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). For applications filed on or after November 29, 1999, this rejection might also be overcome by showing that the subject matter of the reference and the claimed invention were, at the time the invention was made, owned by the same person or subject to an obligation of assignment to the same person. See MPEP § 706.02(I)(1) and § 706.02(I)(2).

Saito was discussed above and teaches pumping down the chamber between process steps (column 7 lines 49-54).

Saito differs from the present invention in that Saito does not teach purging the chamber with nitrogen between each processing step.

Ishiko teaches a processing method that uses nitrogen between processing steps to purge the chamber. (Abstract)

The motivation for supplying a purge in addition to pumping down the chamber is to further remove un-reacted process gases and reaction byproducts.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to purge the chamber between the processing steps of Saito as taught by Ishiko.

### ***Allowable Subject Matter***

9. Claim 20 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

10. The following is a statement of reasons for the indication of allowable subject matter: the controlling step as claimed in claim 20, specifically, the controlling step of controlling pressure within the exhaust pipe to be fluctuated in such a way that a period at which the pressure is 10 kPa or higher and a period at which the pressure is less than 10 kPa are cyclically repeated, and that the period at which the pressure is 10 kPa or higher can be obtained longer than the period at which the pressure is less than 10 kPa was not found in or suggested by the art.

### ***Conclusion***

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

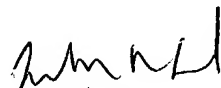


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12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory Mills can be reached on (571) 272-1439. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund  
Primary Examiner  
Art Unit 1763

JRL  
2/24/04